Valco® Valve Control Driver
User Guide

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Introduction

This document describes the configuration of the Valco® valve driver. It also explains how to build a control method for this driver, how to start and view a running acquisition and what actions are available during an analysis.

Installation and Configuration

Installing the Driver Software

To install the CompassCDS Drivers software, refer to the CompassCDS Installation Guide.

Configuring the Driver

The driver software configuration is done in the CompassCDS Configuration Manager when a new chromatographic system is created.

Configuring the Valco valve driver

Click on the button corresponding to the Valco valve driver and the configuration screen appears.

The toolbar allows you to easily scroll through the configuration windows:

to select the first configuration window.

to select the previous configuration window.

to select the next configuration window.

to select the final configuration window.

Communication Window

Communication Setup parameter group:

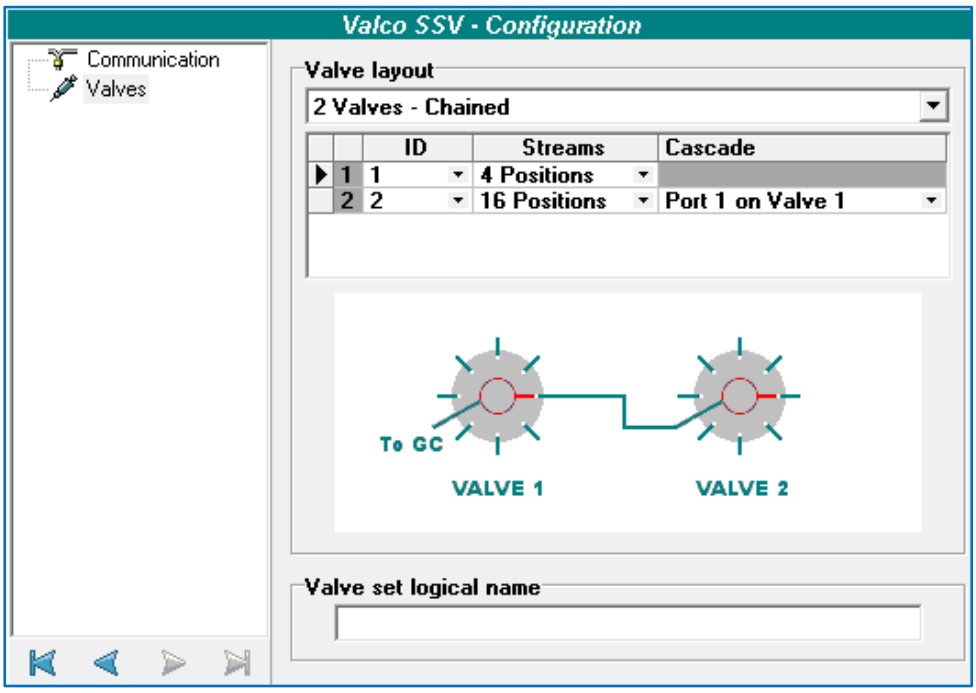
Select whether the instrument is connected to a Local Serial Port, a Varian CP-3800 Serial Integrated Device, or a STAR 800 & 850 MIB serial port.

Select the corresponding Port number where the instrument is connected.

Select the Baud Rate of the Valve according to the instrument configuration.

NOTE: To configure the Baud Rate and ID of a Valco Valve, use the VICI Valve configurator tool. Please refer to the appendix VICI Valve Configurator on page 16 for more details.

Valves Window



Valve layout parameter group:

Select the number of valve connected to the system and then for each valve, configure its ID, its number of Streams and, if required, its Cascade position.

Enter a logical name for the Valve system if required. This can be useful when two systems of valves are connected on a multi-injector GC, in order to differentiate them.

NOTE: Depending on the valve layout, the way to select the valve stream in the method will change. Please refer to the appendix Stream Selection on page 13 for more details.

NOTE: To configure the Baud Rate and ID of a Valco Valve, use the VICI Valve configurator tool. Please refer to the appendix VICI Valve Configurator on page 16 for more details.

Configuring the Synopsis

In the Overview part of the system configuration, a synopsis can be defined for the system. This synopsis depends on the configured devices.

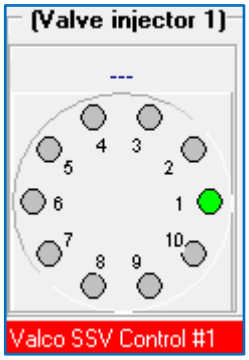
1. To save the configuration of these devices, click on the OK button.
2. Right click on the system name in the bottom part of the CompassCDS Configuration Manager screen. A pop-up menu appears: click on Stop. Then right click on the system name again, and click on Start.

3. Go back to the System Configuration screen (Properties wizard). A graphic of the devices that comprise the system is displayed in the synopsis screen. To configure the synopsis as the real instrument configuration, move each module, then connect it appropriately. To do this, select one anchor for each of the two modules (the selected anchors become red) and click on the button; a connection tube will appear between the two anchors.

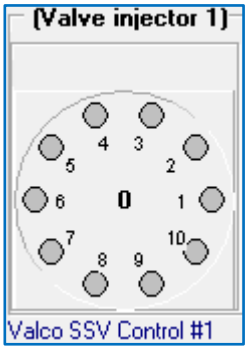
   Click on to delete a selected tube, click on the buttons to delete all the tubes.
   Click on to define a background color, or on to make the background transparent.
   Click on the icon to change the grid color.

4. Once the synopsis configuration is complete, it will be displayed in CompassCDS, in the Systems view, accessed from the Systems tab. In this view, the Overview section shows the synopsis of the system with some parameters displayed (temperature, flow, signal, etc.) depending on the installed devices.

   For example, the following pictures represent the overview of the Valco Valve:



CompassCDS Configuration Manager Screen



CompassCDS Screen

NOTE: Once the system has been created and correctly configured, it must be associated with one or more CompassCDS Projects in order to start data acquisition. For more information on the creation and configuration of a system, refer to the CompassCDS Configuration Manager User Guide.

Click on the button to print the current configuration.

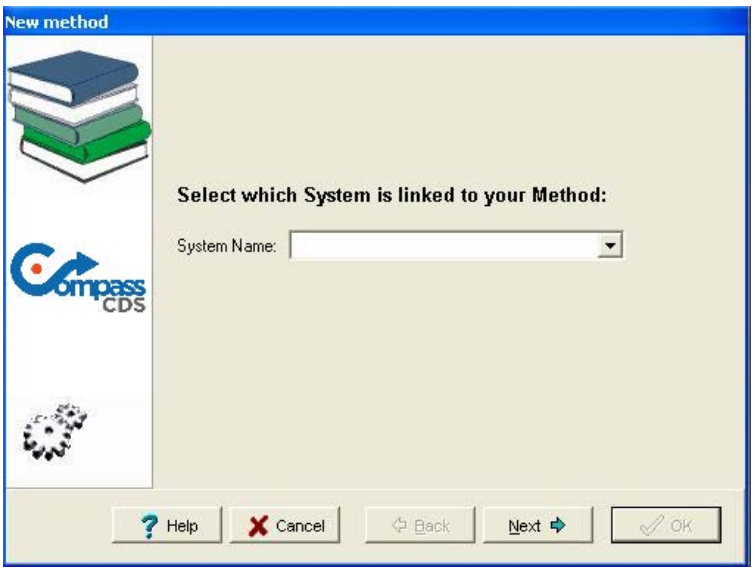
Building a Method

Creating a New Method

The CompassCDS method tree contains parameters for instrument control, data acquisition, chromatogram processing, and editing of final results. To initially set up a method, it is not necessary to define all of the method tree sub-sections; however, the instrument control and acquisition sections must be completed in order to start acquiring data.

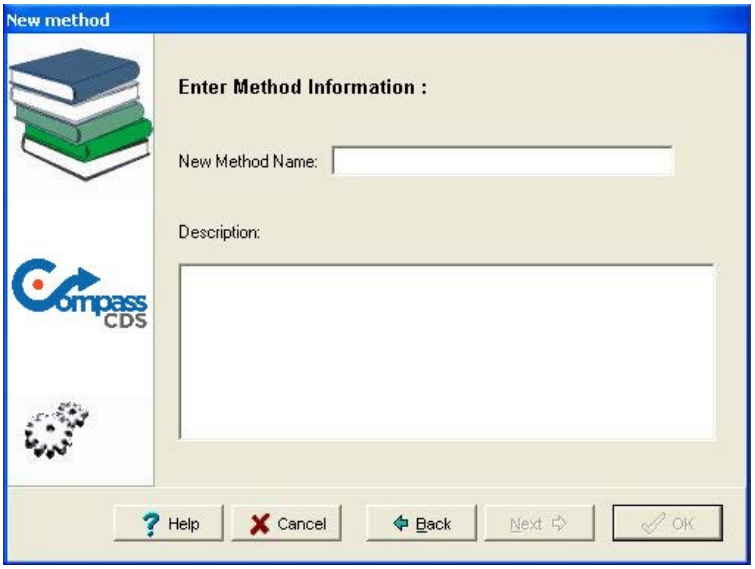
1. To create a new method, select the FILE / NEW METHOD option from CompassCDS main menu.

   A method creation wizard guides users through the initial steps of method creation:



2. Select the system (chromatograph) to be associated with the method. CompassCDS methods are created for particular systems and only methods associated with that system will be available for selection during data acquisition.

3. Once this field has been completed, click on the Next button to move to the second step of the method creation wizard:



4. Enter the New Method Name in the first field. Information concerning the method can be entered into the optional Description field.

5. Once these fields have been completed, click on the OK button. The new method is created and is opened with default parameters in CompassCDS. The next step is the definition of each of the method tree sections.

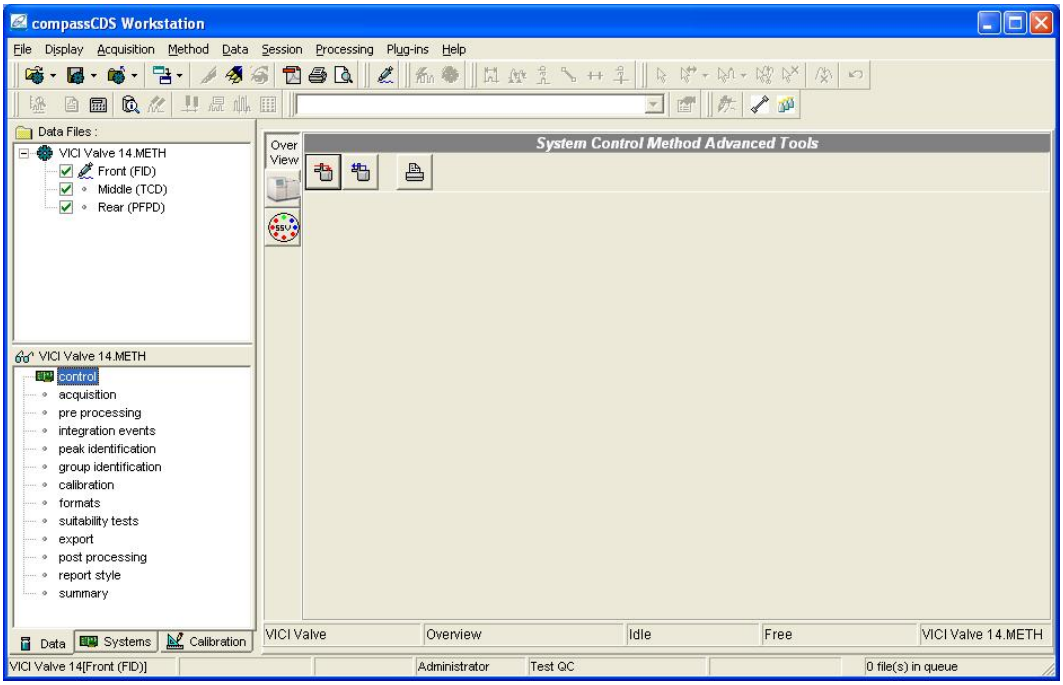
   The instrument control and acquisition section must be defined in order to start an acquisition. In the following section of this guide, only the instrument control section for the Valco Valve is detailed. Other parameters such as Injection Volume, Vial and Rack number may be necessary and are defined in the acquisition section.

NOTE: For more information on the programming of each method section, refer to the CompassCDS User Guide.

Control Method Section for the Valco Valve

Once the new method is created, select the control section in the lower part of the browser (method tree).

The following screen appears:



Press the Over View button to display the System Control Method Advanced Tools window:

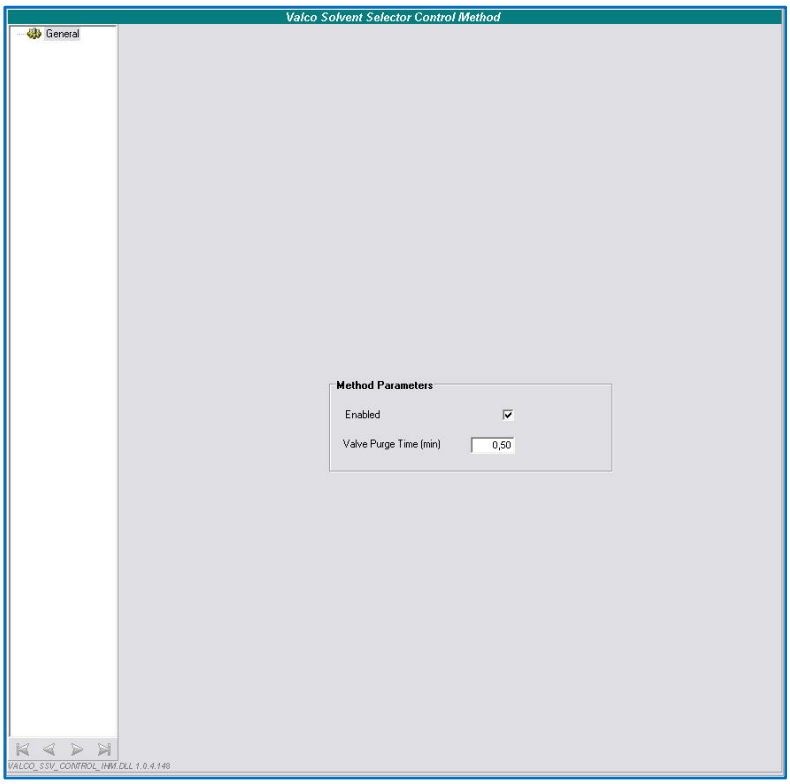
to send the current method to the instrument.

to get the active method from the instrument.

to print the current method.

Click on the button to display Valco valve control method section. It contains one sub-section: Parameters.

General Control



Method parameter group

Enable: Check or uncheck this feature to use or not to use the Valco injector.

NOTE: Other ways to disable the Valco injector are:

- - Enter 0 as the vial number in the Valco acquisition parameters (see the Starting and Viewing an Acquisition section).
- - Uncheck the Valco injector in the method.

Enter the Valve Purge Time in the corresponding field.

NOTE: Depending of the valve layout, the way to select the valve stream in the method will change. Please refer to the appendix Stream selection for more details.

Starting and Viewing an Acquisition

Quick Start and Sequence

Once the instrument control method has been correctly programmed, an analysis can be started. The next section briefly describes how to start an acquisition.

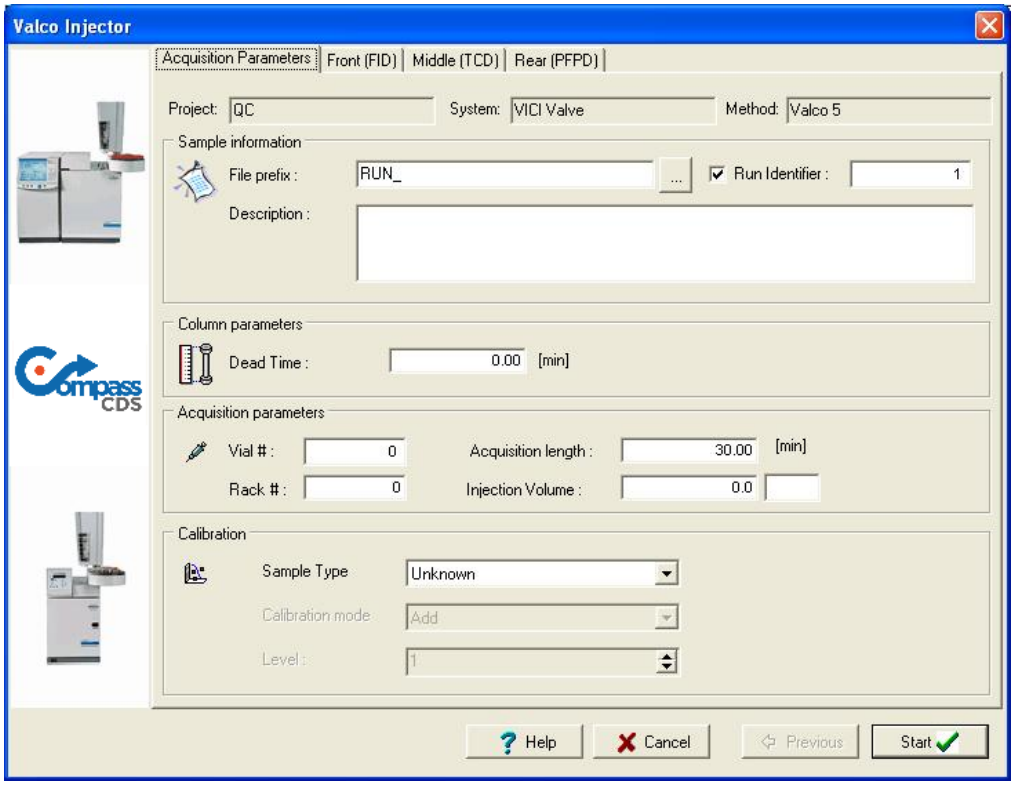
Quick Start (Single Acquisition)

1. Press the button.

   In the Quick Start window, select the system, the method and optionally the project if connected in "All project" mode.

2. Press the OK button.

   The following screen is displayed:



   In the Acquisition Parameters tab, required fields like the Run Name, the Run ID and the Acquisition length must be filled in before starting an analysis. Furthermore, if the system is equipped with an autosampler controlled by CompassCDS, the Injection Volume, the Vial position and the Rack number (if required) must be entered.

   Other parameters associated with each acquisition channel can be entered in the Channel X tab.

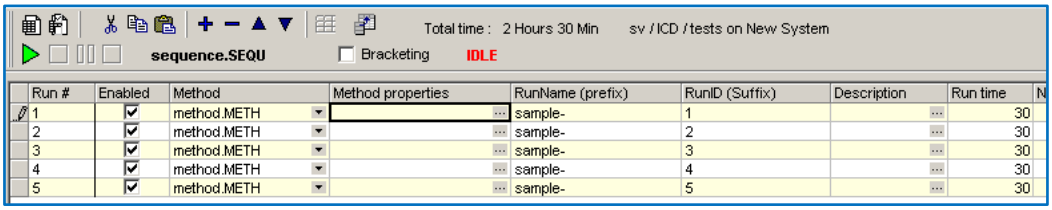
3. Click on the Start button to start the acquisition if the system is a single-injector system or click on the Next button if the system is a multiple injector system. In a multiple

injector system, the same parameters entered for the first injector must be entered for additional injectors before starting the acquisition.

Sequence

1. To create a sequence, select the FILE / NEW SEQUENCE menu, and complete the displayed creation wizard screen (refer to CompassCDS User Guide), by entering the system name that will perform the analysis, the number of lines (corresponding to the number of samples), and the sequence name.

2. The sequence is displayed. Complete the sequence information columns (refer to CompassCDS User Guide).



Run #	Enabled	Method	Method properties	RunName (prefix)	RunID (Suffix)	Description	Run time
1	☑	method.METH		sample-	1		30
2	☑	method.METH		sample-	2		30
3	☑	method.METH		sample-	3		30
4	☑	method.METH		sample-	4		30
5	☑	method.METH		sample-	5		30

The Method Name, the Run Name, the Run ID, and the Acquisition length must be filled in before starting the analysis. All these parameters are automatically imported from the acquisition part if defined in the method.

3. Start the sequence by clicking on the button.

NOTE: For more details about how to start an acquisition, refer to CompassCDS User Guide.

Running Acquisition Status

Viewing a Running Acquisition

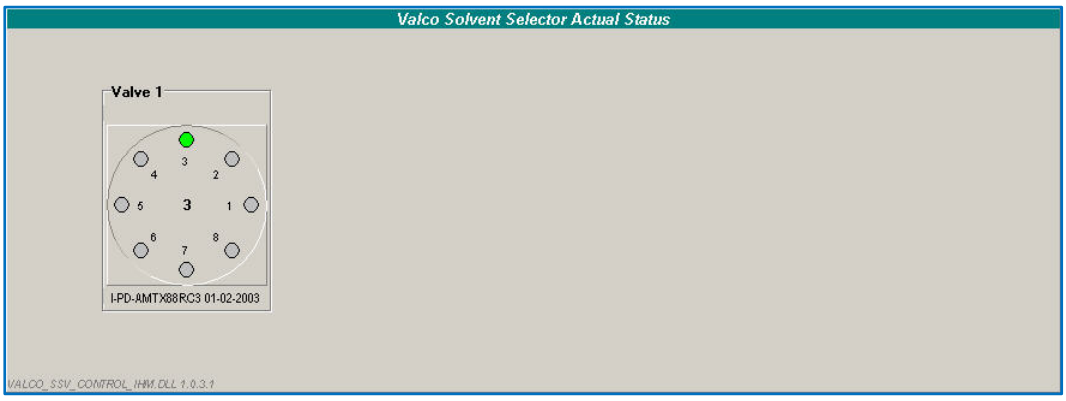
To view a running acquisition, click on the Systems tab then select the running system. A window is activated which is composed of two parts: the running chromatogram and the status window where the driver modules are listed.

Status of the Valco Valve

Click on the

button corresponding to the Valco Valve driver and the Valco Valve status screen will appear.

Status Window

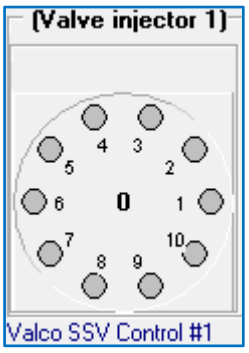


This screen displays the position of each valve. If the system is idle change the stream position by clicking on the desired position.

Overview Window

Click on the Over View button: the Status Overview window is displayed and contains three tabs:

General: displays the synopsis of the instrument, where the current valve position can be read. If the system is idle change the stream position by clicking on the desired position.



Not Ready: contains the not ready information sent by the instrument.

Events: contains the events that have occurred on the instrument.

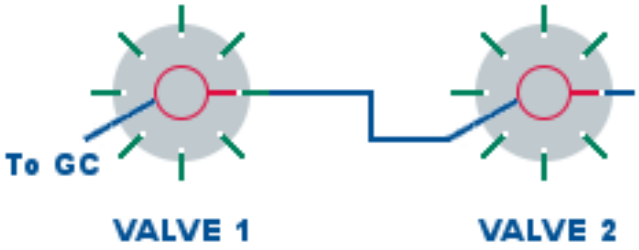
Appendix

Stream Selection

1 Valve

In this case, enter the stream number in the vial field.

2 Valves Chained



In this case, enter the stream number in the vial field. Each stream will have a unique number from 1 to the sum of valve 1 ports and valve 2 ports. The port of valve 1 where the valve 2 is cascaded will be automatically selected when injecting from a stream on valve 2.

Examples

If the user wants to select the stream 2 of valve 1, the value to enter in the vial field will be 2.

If the user wants to select the stream 5 of the valve 2 and valve 1 has 16 positions, the value to enter in the vial field is 5+16=21

3 Valves Chained

In this case, enter the stream number in the vial field. Each stream will have a unique number from 1 to the sum of valve 1 ports, valve 2 ports and valve 3 ports. The port of valve 1 where the valve 2 is cascaded will be automatically selected when injecting from a stream on valve 2 or 3. The port of valve 2 where the valve 3 is cascaded will be automatically selected when injecting from a stream on valve 3.

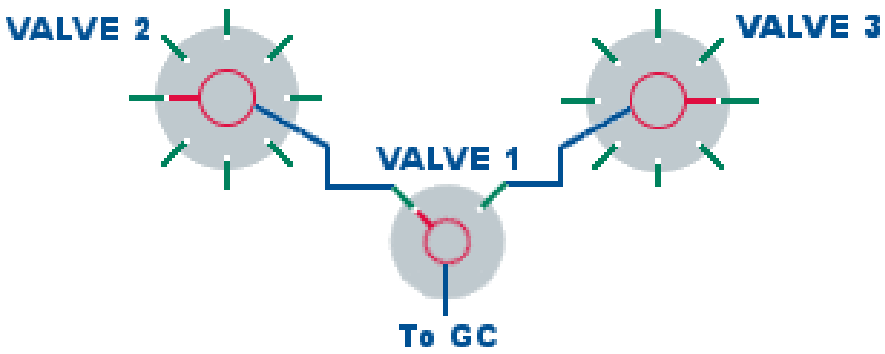
Examples

If the user wants to select the stream 2 of valve 1, the value to enter in the vial field will be 2.

If the user wants to select the stream 5 of the valve 2 and valve 1 has 16 positions, the value to enter in the vial field is 5+16=21

If the user wants to select the stream 8 of valve 3 and valve 1 and 2 have 10 positions, the value to enter in the vial field is 8+10+10=28

3 Valves Networked



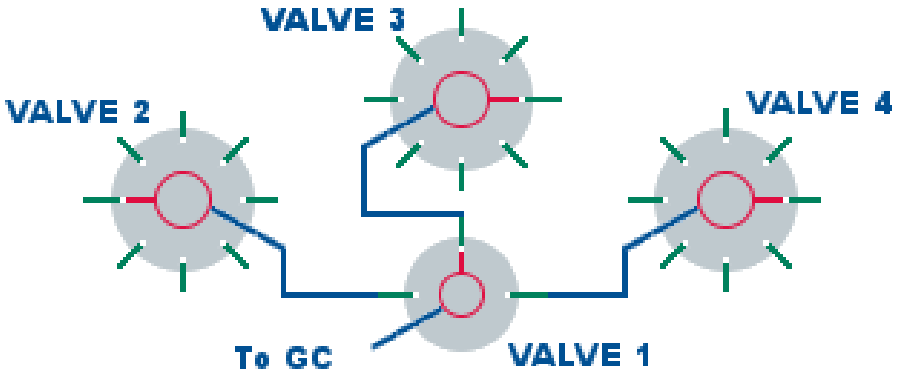
In this case, enter the stream number of valve 1 in the rack field and the stream number of valve 2 or 3 in the vial field.

Examples

If the user wants to select the stream 5 of the valve 2 and valve 2 is connected to the stream 1 of Valve 1, the value to enter in the vial field is 5 and in the rack field 1

If the user wants to select the stream 6 of the valve 3 and valve 3 is connected to the stream 2 of Valve 1, the value to enter in the vial field is 6 and in the rack field 2

4 Valves Networked



In this case, enter the stream number of valve 1 in the rack field and the stream number of valve 2, 3 or 4 in the vial field.

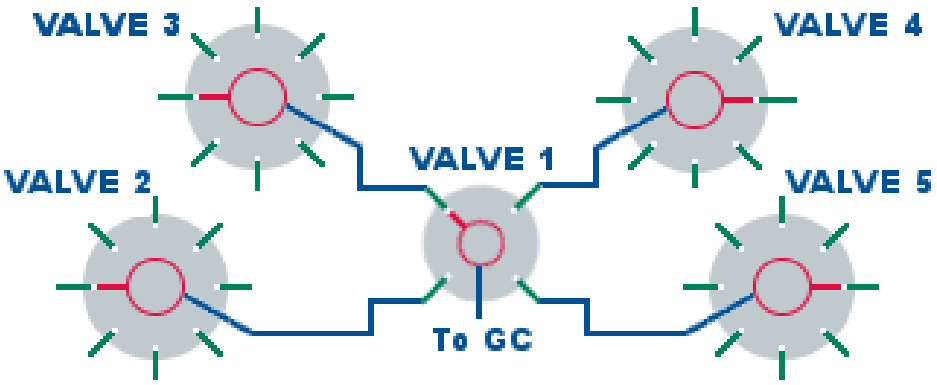
Examples:

If the user wants to select the stream 5 of the valve 2 and valve 2 is connected to the stream 1 of Valve 1, the value to enter in the vial field is 5 and in the rack field 1

If the user wants to select the stream 6 of the valve 3 and valve 3 is connected to the stream 2 of Valve 1, the value to enter in the vial field is 6 and in the rack field 2

If the user wants to select the stream 11 of the valve 4 and valve 4 is connected to the stream 3 of Valve 1, the value to enter in the vial field is 11 and in the rack field 3

5 Valves Networked:



In this case, enter the stream number of valve 1 in the rack field and the stream number of valve 2, 3, 4 or 5 in the vial field.

Examples:

If the user wants to select the stream 5 of the valve 2 and valve 2 is connected to the stream 1 of Valve 1, the value to enter in the vial field is 5 and in the rack field 1

If the user wants to select the stream 6 of the valve 3 and valve 3 is connected to the stream 2 of Valve 1, the value to enter in the vial field is 6 and in the rack field 2

If the user wants to select the stream 11 of the valve 4 and valve 4 is connected to the stream 3 of Valve 1, the value to enter in the vial field is 11 and in the rack field 3

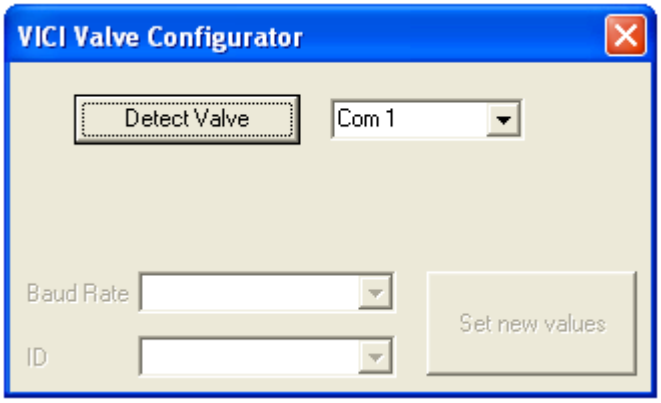
If the user wants to select the stream 15 of the valve 5 and valve 5 is connected to the stream 4 of Valve 1, the value to enter in the vial field is 15 and in the rack field 4

VICI Valve Configurator

The VICI Valve Configurator is a tool to configure the baud rate and the ID of the VICI Valves.

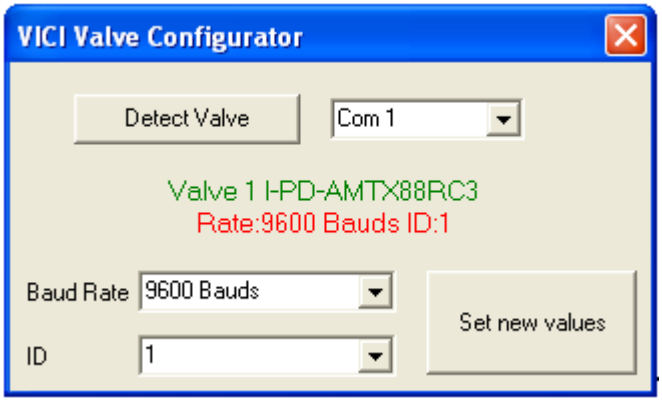
To configure a valve, follow the steps described below:

1. Connect the valve to a COM port of the local computer.
2. Launch the executable file called "VICI_CONF_VALVE.EXE" located in the CompassCDS\Server folder.
3. The following window will appear



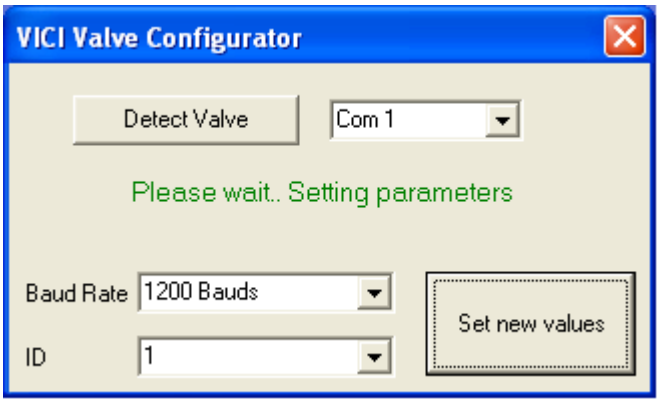
4. Select on which COM port the valve is connected and press the button

5. The valve will be automatically detected and its current Baud rate and ID parameter will be displayed as below.



6. Change the Baud Rate and/or the ID value and press the

button, the following screen will be displayed.



6. Once the parameters are correctly set in the valve, the following confirmation message will be displayed.